

sPHENIX SC-Magnet scheduled to Arrive Early Tomorrow Morning, Feb 4

From: Korol, Alex J

Sent: Tuesday, February 03, 2015 9:17 AM

To: Phillips, David B; Pendzick, Alexander F; Sullivan, Chip; Mills, James A; McNaughton, James; O'Malley, James K; Williams Jr., Edward

Subject: Oversize load

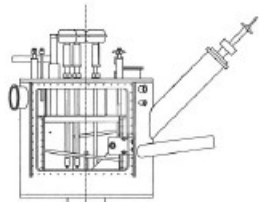
To All,

I have been in contact with the Contractor and Pat from Pedowitz this morning. We are a Go for delivery to Brookhaven tomorrow am sometime between midnight and 4am. I will meet up with the driver in Nassau on I-495 and escort on site to the final destination. The Port Authority has been contacted and as of now all permitted loads are valid (this can change at any minute) I'll keep you all posted if any changes occur. I will call and coordinate clearing the route and Door # 12 in bldg 912 for offloading. The Pre -Job briefing will take place 1/2 prior to the start of the job. I will contact George Washinton Bridge police , Throgs Neck Bridge police , Nassau and Suffolk highway patrols in the evening for verification of permits. BNL police has also been notified.

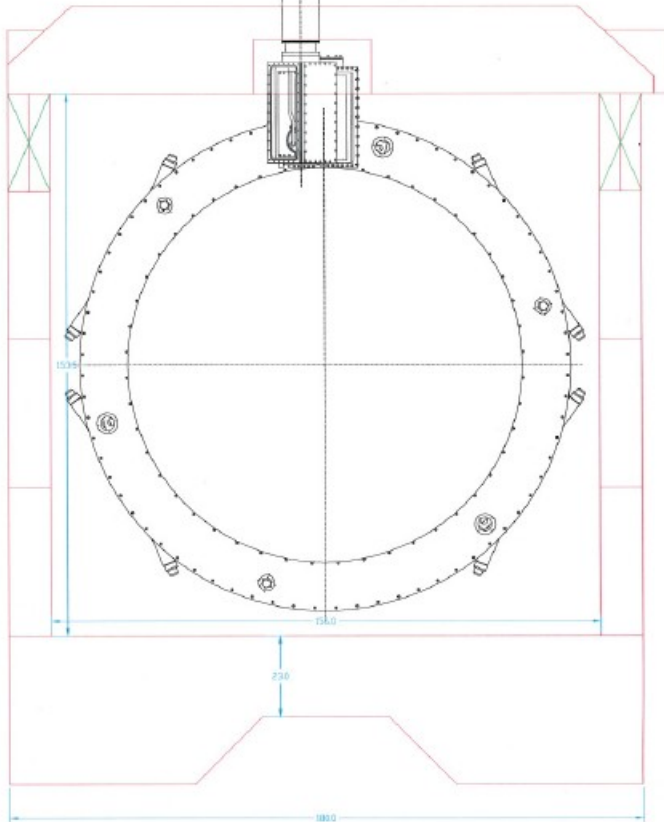


Edward O'Brien PMG

Temporary Flux Return for Field Testing SC-Magnet

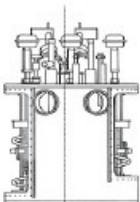
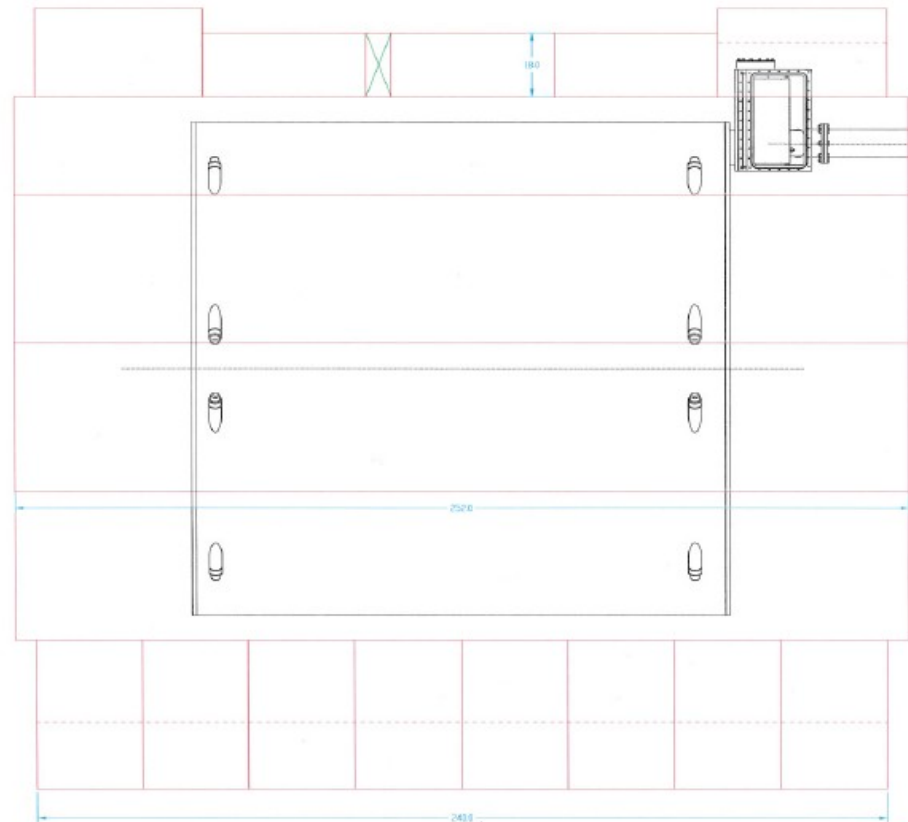


Front View



Dave Phillips has identified the majority of the steel we would need for a temp flux return to be used in a test in Bldg 912

Side view



C-AD Labor to sPHENIX

Estimates from C-AD Engineers: Phillips, Lambiase, Than

		2015	2016	2017	2018	2019	2020	Comments
1								
11								
12	1.02 Decommissioning							
13	Sum Scientists	0.06	0.17	0.11	0.00	0.00	0.00	
14	Sum Professionals	0.37	0.91	0.41	0.00	0.00	0.00	
15	Sum Technicians	0.18	2.35	1.90	0.00	0.00	0.00	
16	Sum Designers	0.00	0.00	0.00	0.00	0.00	0.00	
17	Sum Students	0.00	0.00	0.00	0.00	0.00	0.00	
18	Sum Admins	0.00	0.00	0.00	0.00	0.00	0.00	
19	Sum Trades	0.02	1.07	0.92	0.00	0.00	0.00	
20	Decommissioning total	0.63	4.50	3.34	0.00	0.00	0.00	100% ES&F
21								
22	1.03 Magnet							
23	Sum Scientists	0.22	0.30	0.30	0.30	0.30	0.45	
24	Sum Professionals	1.61	2.96	3.28	1.62	1.80	0.53	
25	Sum Technicians	0.63	0.61	1.19	1.65	0.93	0.69	
26	Sum Designers	0.94	1.52	0.90	0.40	0.09	0.03	
27	Sum Students	0.00	0.00	0.00	0.00	0.00	0.00	
28	Sum Admins	0.00	0.00	0.00	0.00	0.00	0.00	
29	Sum Trades	0.22	0.08	0.03	0.49	0.27	0.00	
30	Magnet Total	3.62	5.47	5.70	4.45	3.38	1.70	20% ESF+40% Cryo+40% PS/Quench
31								

Need to get MoU with C-AD covering this labor

sPHENIX Decommissioning and Installation Review

Jan 23, 2015

Review committee:

Howard Gordon (chair)

Al Pendzick

Bob Hackenburg

George Mahler

Flemming Videbaek

Agenda:

Introduction

sPHENIX Project Schedule & Resources

Decommissioning

Global Assembly and Integration

Subsystem Assembly

Final Detector Installation

Ancillary Systems

Ed O'Brien

Jim Mills

Dave Phillips

Rich Ruggiero

Anatoli Gordeev

Don Lynch

Paul Giannotti

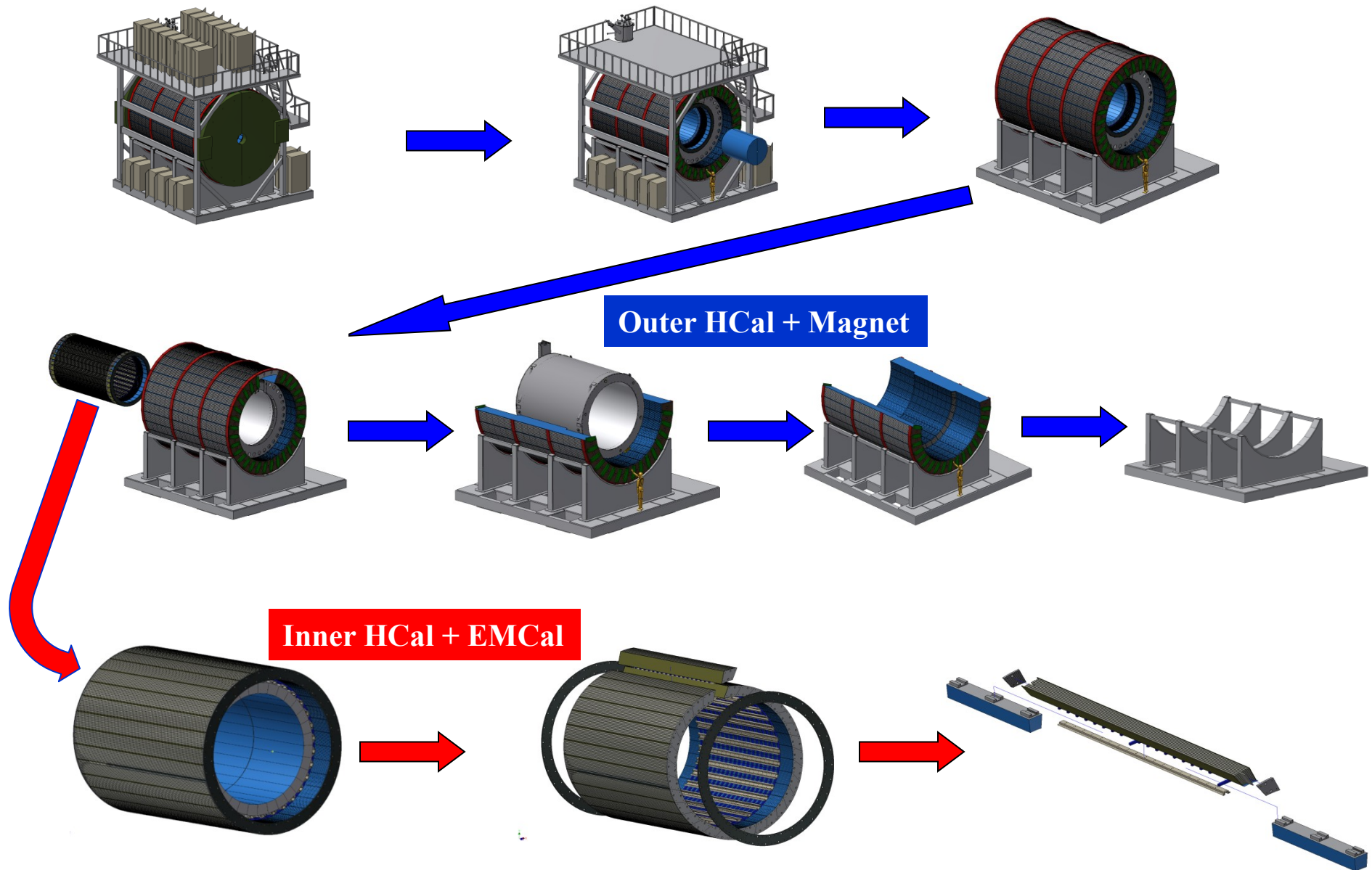
Howard expects to have the review report by the end of this week. The review was generally positive with the main issue being the disposal of the potentially activated portions of the PHENIX magnet steel.

Installation Review

Information Presented:

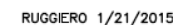
- Overall schedule (CD-1 10/2015, CD-2/3 10/2016, installation complete late fall 2020)
- Critical path – HCal construction
- Plan for building Outer HCal, Inner HCal, EMCAL
- Installation plan including conceptual design of fixtures for HCal, EMCAL
- FEA of stress alignment issues for Outer and Inner HCal
- Resource estimates
- Infrastructure Plans
- Critical interfaces

sPHENIX Deconstructed



SPHENIX ENVELOPE DRAWING

- ◀ SOUTH ----- NORTH ▶



WEIGHT Estimates

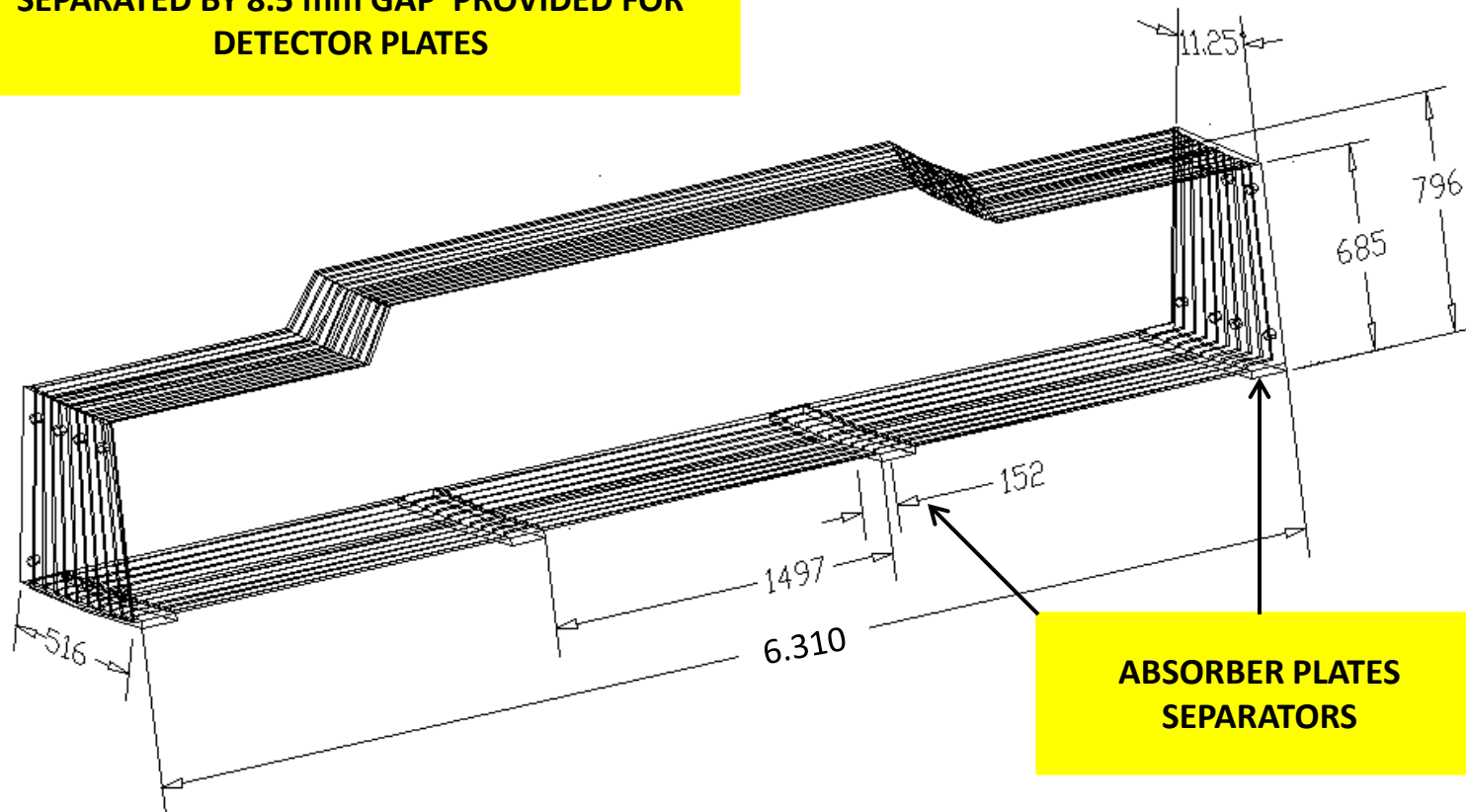
Inner Hcal	64,000 lb, 32 ton (Calc)	(2000 lb/ module)
Outer HCal	854,000 lb, 427 ton (Calc)	(27,000 lb /module)
EMCal (with mounting)	61,000 lb, 31 ton (Calc)	(900 lb/module)
Inner HCal Assy Rings	1650 lb,	1 ton (total) (Calc)
Inner to Outer load transfer rings	6400 lb,	3.5 ton (total) (Calc)
Flux return end caps	226,000 lb	113 ton (Calc)
Magnet + stack wt	42,000 lb	21 ton (measured+stack estimate)
Total Detector load on Central Pedestal (CP)	1,255,000 lb	628 tons
CP weight without magnet and detectors	250,000 lb	125 tons (rough estimate)

sPHENIX OUTER HCal

MODULE VERSION. PRELIMINARY STUDY . Module dimensions

11.25 degree MODULE PRESENTED.
32 TOTAL

MODULE CONSIST OF STEEL ABSORBER PLATES,
SEPARATED BY 8.5 mm GAP PROVIDED FOR
DETECTOR PLATES

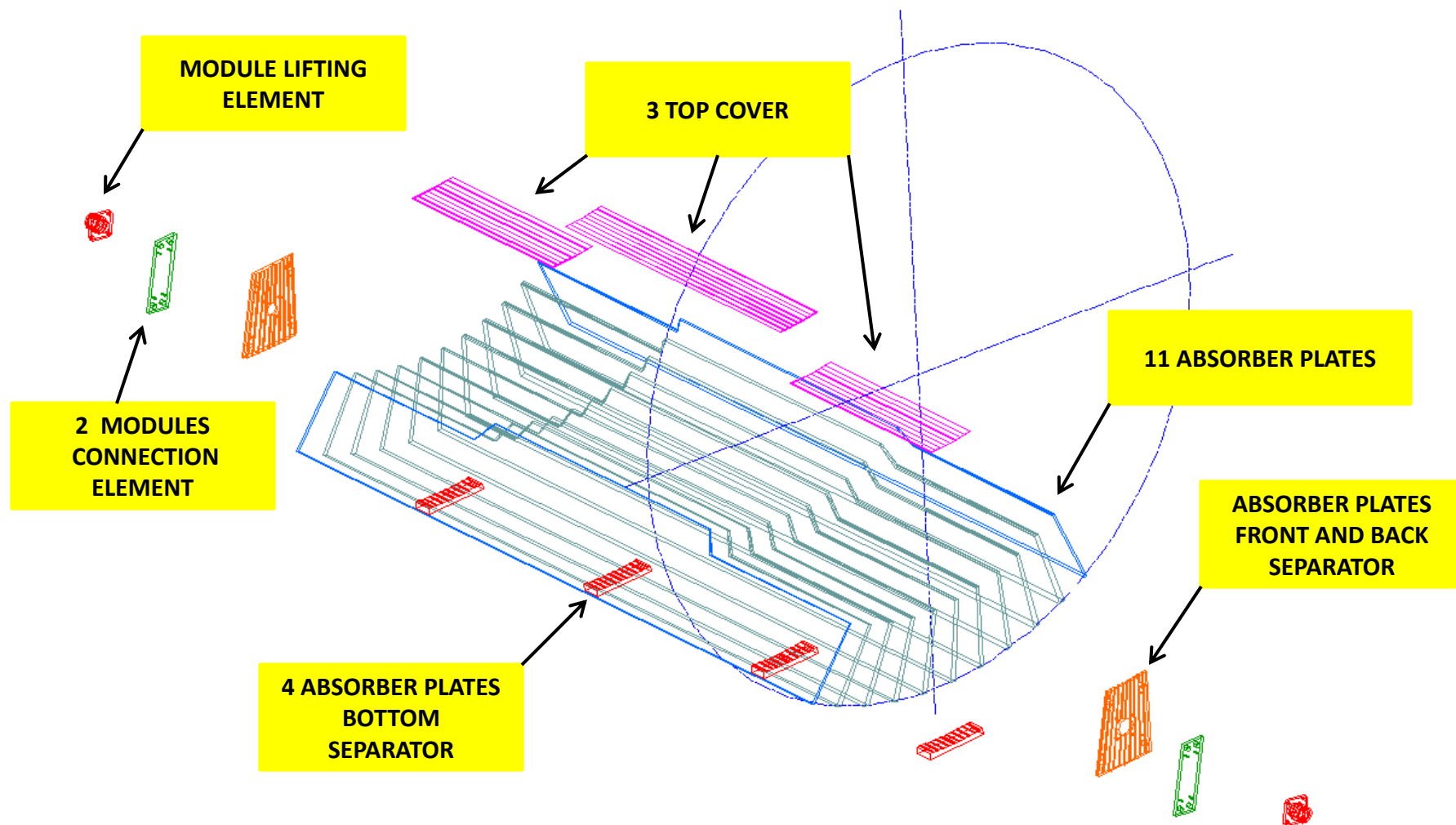


ABSORBER PLATES
SEPARATORS

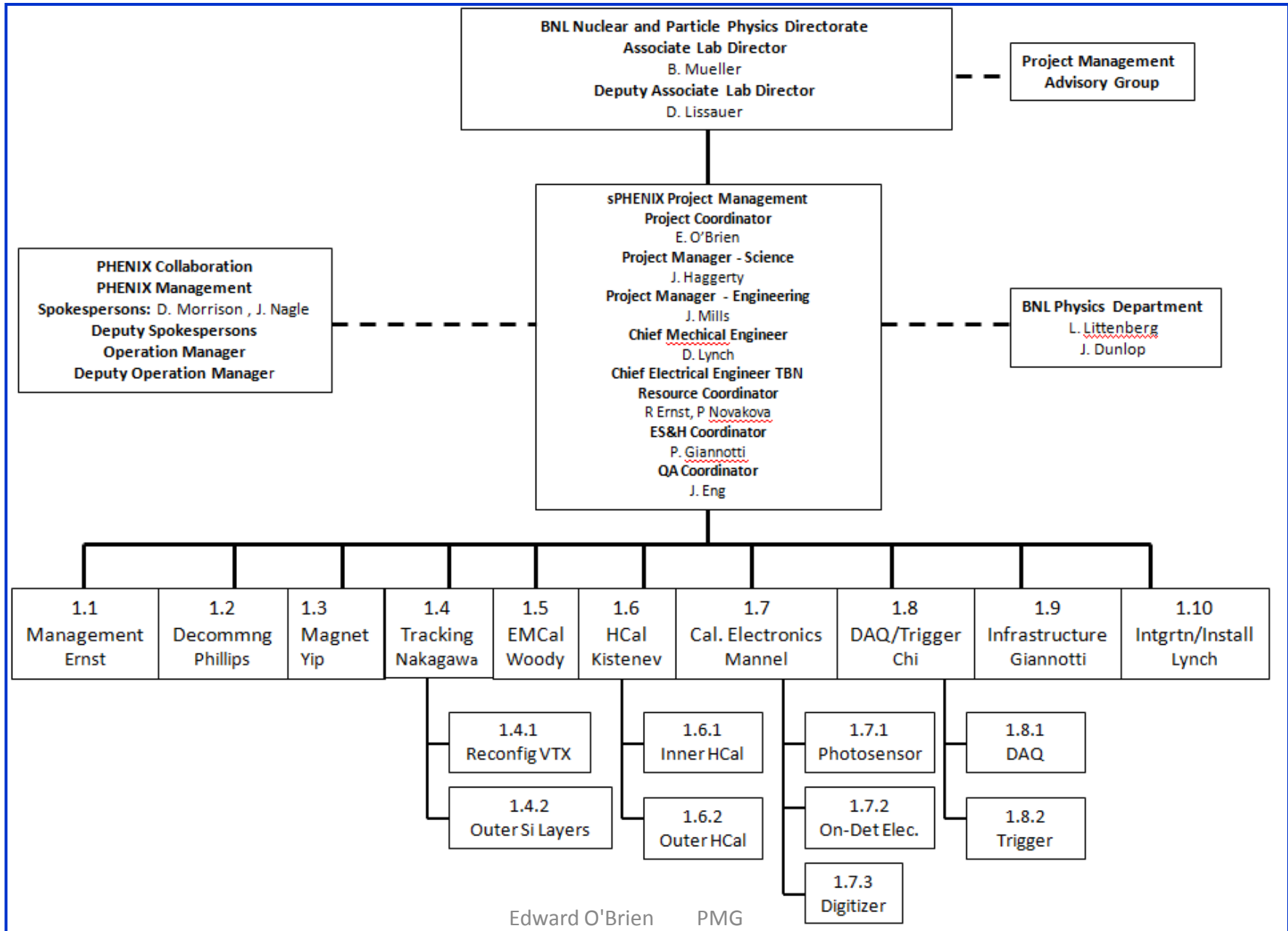
MODULE WEIGHT – 12,272 kg

sPHENIX OUTER HCal

MODULE VERSION. PRELIMINARY STUDY . Module exploded view 1



The Management Team



sPHENIX HCal Review, Feb 23

Review Committee: M. Begel, H. Chen, J. Dolph, T. Ludlam (chair), H. Ma, J. Stewart, J. Tuozzolo

The Review Panel is asked to assess the state of the project plan for the HCAL, a central component of the proposed sPHENIX. The Panel is asked to evaluate the readiness and plans for HCAL in the following areas:

- Performance and access requirements
- The design steps for mechanical, optical, and readout elements of the calorimeter
- R&D plans and prototyping requirements
- The plan for construction, installation, and testing of this subsystem
- Subsystem management and organization

We ask you to address and comment on the following points

- 1) Are all the performance specifications sufficiently defined?
- 2) Are all the major steps in the R&D and prototyping identified and understood?
 - a. Is the time allocated for each step adequate?
 - b. Are the needed resources adequate and have they been identified?
- 3) Have the key milestones needed to validate the design been identified?
- 4) Are all the major steps for construction and installation been identified and understood?
 - a. Is the time allocated for each step adequate?
 - b. Are the needed resources adequate and have they been identified?
 - c. If special tooling is needed – are the needed resources identified?
- 5) For the HCAL subsystem – evaluate the status of the following:
 - a. WBS and WBS dictionary
 - b. Have the critical milestones been identified? (Including critical path items).
 - c. Cost Book – Basis of estimates
- 6) Have the technical and management teams been identified to carry out the needed tasks?

Thank you in advance for you advice,
Berndt Mueller
ALD for NPP

sPHENIX R&D and Simulation

EMCal

- **C. Woody, S. Stoll, J. Huang working with PHENIX techs, engineers designers to build projective EMCal module**
- **BNL, UCLA working with industry to develop techniques to mass produce modules. (Joint EIC and sPHENIX R&D funds)**
- **UIUC and U Michigan in discussions to develop proposal for NSF MRI: EMCal SiPM+front end electronics**

HCal

- **E. Kistenev working with Russian industry to produce scintillator plates**
 - **Expect IHEP participation in the effort**
- **U Colorado working with BNL-PHENIX group to develop scintillator test stands**
- **U Michigan postdoc investigates scintillator production options at FNAL**

Tracker

- **RIKEN silicon strip sensor R&D ongoing**
- **LANL plans to submit an LDRD for silicon tracker Fee R&D**

Calorimeter Electronics

- **Prototype R&D ongoing at Columbia Univ, Nevis Labs**

sPHENIX TPC Working Group

- **TPC tracking working group has been formed in mid-January**
- **Charge**
 - **Evaluate cost vs. physics benefit of TPC-hybrid tracking vs. all Silicon tracking in sPHENIX**
- **Primary metric will be the momentum resolution of the Upsilon**
- **Aim to complete evaluation by May/June, 2015**
- **Meetings scheduled weekly on Tuesdays at 11AM (EST)**

TPC Working group composition and tasks

- **Primary working group consists of Ron Soltz(LLNL), Takao Sakaguchi, Jeff Mitchell (BNL), Alan Dion, Klaus Dehmelt(SBU) working in consultation with Tony Frawley(FSU) and Sasha Milov (WI)**
- **Work to be divided between (fast) Geant4 simulation and (slower) TPC drift and readout simulation in these areas:**
 - **TPC electrostatic simulation (Ron) using GMESH + Elmer**
 - **TPC drift, gain, and readout (Alan, Klaus, and Jeff) using GEM-TPC software tools**
 - **TPC tracking and reconstruction (Takao and Alan) using Fun4All**
- **The goal is to couple closely to Tony's work on Si tracking so that we can evaluate differences**

From the first meeting in January

Overview

2

- GEM Simulation Framework for an ILC-TPC
 - Dissertation by Astrid Münnich
- MarlinTPC
 - Modular Analysis & Reconstruction for the Linear Collider TPC
 - Facilitates the modular development of reconstruction and analysis based on the linear collider data format (LCIO)

Motivation for TPC Simulation Framework

3

- GEANT4 allows to model detector geometry and simulate energy deposit in different materials
- Difficulties: No detailed detector response description which takes into account
 - Transportation of produced charge to readout devices
 - Effects of readout electronics